

Academic Year: ( 2020 / 2021 )

Review date: 09-07-2020

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: MEDINA DOMINGUEZ, FUENSANTA

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

## OBJECTIVES

The competencies that the student acquires are:

### - Basic Competences

BC1. Students have demonstrated knowledge and understanding in an area of study that is at the core of general secondary education, and is often at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study

BC3. Students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues.

### - General competencies

GC3. Be able to manage, identify, gather and interpret relevant information on issues related to the business environment in the digital age.

### - Transversal Competencies

TC1. Be able to work in multidisciplinary and/or international teams and to organize and plan the work, making the right decisions based on the available information, gathering and interpreting relevant data to make judgments and critical thinking within the area of study.

TC3. To be able to assess the reliability and quality of the information and its sources using such information in an ethical way, avoiding plagiarism, and in accordance with the academic and professional conventions of the area of study.

### - Specific Competencies

SC12. Know the basics of information technologies and the mechanisms of information representation, storage and transformation

Understanding information systems, the main technological tools applicable to companies and businesses, and their needs in terms of security and information protection

SC14. To know the principles of software development, production and implementation in the different organizational areas of the companies

SC15. To know the main technological products and trends of technology associated to the world of management and business, and to know how to design their implementation and innovation in the organizations

SC17. Know the main programming languages, and be able to use those languages for problem solving in different development environments

The Learning Results are:

LR1. To have acquired advanced knowledge and demonstrated an understanding of the theoretical and practical aspects and working methodology in the field of business administration and digital technology with a depth that reaches the forefront of knowledge.

LR2: To be able, through arguments or procedures developed and supported by themselves, to apply their knowledge, understanding of these and problem-solving skills in complex work environments characteristic of the fourth era, making use of creative and innovative ideas, capable of creating new business opportunities.

LR3. Have the ability to collect and interpret data and information on which to base their conclusions including, where appropriate and relevant, reflection on social, scientific or ethical issues in the field of digital business.

LR4. Be able to deal with complex situations or situations that require the development of new solutions both in the academic and professional field of digital business management.

## DESCRIPTION OF CONTENTS: PROGRAMME

1.Data Structures: Vector, Factor, Matrix, Array, List, DataFrame

2. Programming Structures

2.1 Conditional structure: if

2.2 Loops: for, while, repeat

- 3. Complex Programming Structures
- 4. Functions
  - 4.1 Definitions
  - 4.2 Variables and parameters
  - 4.3 Infix
  - 4.4 Calls
- 5. Recursive function
- 6. Input, output and data storage (keyboard, files)
- 7. Graphics

#### LEARNING ACTIVITIES AND METHODOLOGY

This course will consist of regular lectures, exercises and lab classes. Regular lectures will provide the students with the theoretical background required to acquire the outlined competences through exercises. Lab classes will give the student the chance to develop practical skills on program analysis, design, testing and documentation.

#### ASSESSMENT SYSTEM

It will be 100% continuous assessment where students will have evaluable practices.

<b>% end-of-term-examination:</b>	0
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	100

#### BASIC BIBLIOGRAPHY

- Meys, J., Vries, A R for dummies, John Wiley & Sons, 2012
- Murdoch Braun A first course in statistical programming with R, Cambridge University Press. , 2007
- Rizzo, Maria Statistical computing with R , Chapman & Hall/CRC, 2007